

29. (amended) Glazing according to Claim 14, where the intumescant layer includes a water content and a silica content such that the intumescent layer is sufficiently fluid to flow between the glass sheets and further forms a gel therebetween in approximately 24 hours.

REMARKS:

This amendment is submitted in response to the Office Action mailed October 3, 2002. Claims 14-38 remain pending with claims 14 and 29 having been amended to correct typographical errors and claim 18 amended to provide the antecedent basis. Applicants thank the Examiner for the thorough search, analysis, and review of this application.

1. The objections to claims 14 and 29 (typographical errors) have been corrected.
2. The rejection of all claims under 35 U.S.C. Section 112 is respectfully traversed. The Office Action indicates that the specification does not provide a definition of the terms “pyrogenous” or “pyrogenic” silica. The specification does indicate, for example at page 3 starting at line 27, the manner in which pyrogenous silica is formed. The specification does indicate at page 3, starting at line 1, that “[P]owders of pyrogenous silica or a mixture of pyrogenous silica and aluminum oxide are commercially available. . . “. The specification indicates the specific silica used for the tests is marketed by Degussa under the name “Aerosil 200” at page 9, lines 12-14. This provides sufficient information for one of ordinary skill in the art to understand what is meant by the terms “pyrogenous” or “pyrogenic” silica.
3. In response to a telephone inquiry from the Examiner, Applicants’ attorney filed an Information Disclosure Statement on September 30, 2002 copy of the brochure from Degussa identifying this Aerosil 200 material. It is requested that the Form PTO 1449 be signed by the Examiner and included with the next Office Action.

4. Should the Examiner be of the opinion that the specification and brochure, individually or collectively, do not sufficiently identify what those of skill in the art would understand to be the meaning of the term “pyrogenous” or “pyrogenic” silica, the Examiner is requested to specifically identify the additional information which the Examiner believes is required.

5. The Office Action identifies Claims 24 and 25 as indefinite. This is respectfully traversed. There is no requirement of a numerical value for the refractive index. The invention of Claim 24 and Claim 25 in this regard is that “... the refractive index of the intumescent layer approximates the refractive index of the silica” This is a teaching to adjust the two refractive indices relative to each other. There is no evidence that one of ordinary skill in the relevant art would not understand this claim language.

6. Finally, the Office Action identifies Claim 18 as having insufficient antecedent basis for “X” and for “the atomic ratio ‘Al/Mg’” in line 1. This is respectfully traversed based on the amendment to Claim 18. It is pointed out for the convenience of the Examiner that Claim 18 depends from Claim 17 which refers to aluminum by name rather than by the symbol “Al”.

7. The rejection of Claims 14-17, 19, 20, 22, 23, 26, 27 and 29 under 35 U.S.C. § 103 based on U.S. Patent 4,190,698 to DeBoel et al is respectfully traversed. This patent is concerned with a fire resistant layer made of “hydrated alkali metal silicate” (see, e.g., col. 1, lines 17-19). Claim 14, however, refers to a “phosphate-based compound...”. These materials are of a different nature and have different properties as explained in the specification. Further, it is believed that the Office Action may have misconstrued the DeBoel et al reference relative to the aluminum phosphate. In the reference, this substance is identified only as a possible “adjuvant” (see, col. 1, line 18) and the same is said about colloidal silica (col. 1, line 23). As thereafter described in the DeBoel et al patent, these

adjuvants are limited to an amount less than 20%, usually less than 10%, and in many cases less than 5% of the composition. (See, col. 2, lines 18-22). By contrast, the present invention describes the use of a greater amount of the phosphate-based compound - - when considering the various examples described in the specification, the phosphate-based compound is typically present in an amount of 50% or more. For example, the specification at page 5, lines 14-24 indicates that the water content (of the intumescent material) should not exceed 40%. Later in the specification it is indicated that the added silica represented 3, 4 or 5% by weight (of the intumescent material). Adding together the water content of 40% and the silica content of 5% certainly suggests that the phosphate-based compound is present in an amount of 55%.

Further, the purpose of silica particles as described in this reference is to “increase the refractiveness of the tumid layer” (col. 1, lines 67-68). This does not correspond to the function of the silica as described in the instant specification where the silica is used as a thickening agent, i.e., where the phosphate-based layers do not have sufficient viscosity at the elevated temperature.

Since the amounts and purposes of the materials are different from the amounts and/or use of the material in the reference, there is no basis, motivation, or teaching to utilize pyrogenous silica or to suggest that the results would be either the same or “unexpected”. The requirement of showing “unexpected results” does not appear applicable to the situation where the components are used for different purposes in the reference.

Based on paragraph 7 (Page 3) of the Office Action, it appears that there is no prior art rejection as to Claims 18, 21, 24-25, 28 or 30-38.


CONCLUSION

The rejections of record under Sections 112 and 103 are respectfully traversed. Reconsideration and allowance of all claims is solicited. Acknowledgement of the

Information Disclosure Statement as noted above in paragraph 3 is requested. Should the Examiner be of the opinion that a telephone conference or personal interview would expedite the prosecution of this application, the Examiner is requested to contact Applicants' attorney at the telephone number given below, prior to issuing a Final Office Action.

Respectfully submitted,

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SERIAL NO.
DOCKET NO.:

MARKED-UP COPY OF AMENDED CLAIMS

14. (Amended) Transparent fireproof glazing comprising at least two glass sheets and an intumescent layer of material being located between the glass sheets, the layer containing a phosphate-based compound and a substance from the group consisting of pyrogenous silica and a mixture of [pyrogenous] pyrogenous silica and alumina.

18. (Amended) Glazing according to Claim 17, wherein the phosphate-based compound is a hydrogen phosphate of Mg, [wherein X is Mg] and the atomic ratio of Al/Mg is in the range of between 0.1 to 0.4.

29. (Amended) Glazing according to Claim 14, where the intumescient layer includes a water content and a silica [context] content such that the intumescent layer is sufficiently fluid to flow between the glass sheets and further forms a gel therebetween in approximately 24 hours.